Tributary 4 Watershed Study

for the Town of Cheverly

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Introduction

RES was tasked with completing a watershed study to examine the potential for upland stormwater management practices within the Tributary 4 drainage area to the stream restoration project of two unnamed tributaries to Beaverdam Creek in the Cheverly East Neighborhood Park in Cheverly, MD (*Map 1. Overall Drainage Area for Tributary 4*). The drainage area is approximately 77 acres of residential and commercial properties which was divided into five sub-drainage areas based on the existing storm drain systems. This study will review the methodology used by RES to select target locations within the stream restoration's drainage area to assess for possible upland stormwater practices. After a brief description of the sub-drainage areas and soil classification within the drainage area, this report will discuss the potential opportunities at each target location.

It should be noted that these areas have not had any soil borings completed. If any of these practices are selected, further engineering analysis, computations, analysis for utility conflicts, and design for these practices would need to be completed.

Methodology

To perform the study, RES evaluated the five sub-drainage areas for the properties to determine if there were any public lands (i.e. schools, libraries, recreational centers, parks), private schools, churches, or commercial properties present within the vicinity of the existing storm drain systems. The structures (manholes and inlets) of the existing storm drain systems could be used either as a control structure for a stormwater practice or be used as a connection point to prevent flooding when a larger-than-design storms occur.

Due to the urban nature of the area, only small-scale practices, or Environmental Site Design (ESD) practices were considered for this study. These small-scale practices typically have smaller drainage areas and smaller footprints, which make them easier to fit into an already developed watershed. Some examples of ESD practices that were considered include rain gardens, micro-bioretention areas, submerged gravel wetlands, permeable pavements, landscape infiltration, and dry wells. Other large-scale Best Management Practices (BMPs) such as ponds, wetlands, infiltration basins, and sand filters were determined to not be a good fit in this highly urban watershed.

The Hydrologic Soil Group (HSG) Classification was also examined to make sure the recommendations from this study are viable options that could function as designed if installed. HSG Soils have a rating of A to D. HSG A soils are typically sandy well-draining soils and HSG D soils are poorly draining soils with heavy clay content. Properties that were considered for this project were either publicly owned or large parcels. The type of properties that were reviewed were the public right of way, commercial properties, public schools, and religious properties. This area does not have any single-family home lots that were large enough to be considered for evaluation for ESD practices.

Map 1. Overall Drainage Area for Tributary 4

Subdrainage Area Descriptions

The stream receives runoff from five different storm drain systems (*Map 2. Subdrainage Areas*). Four of these storm drain systems discharge directly into the stream restoration project while one of the storm drain outfalls is outside the limits of disturbance (LOD). This section of the watershed study will describe each of these subdrainage areas and highlight the areas that were investigated for potential upland stormwater management practices and the results of these investigations.

Map 2. Subdrainage Areas

Tributary 1 (T1)

T1 receives runoff from the eastern portion of the drainage area and accounts for 19.89 acres of the overall drainage area. The roads that contribute to the runoff in this storm drain system include Joslyn Place, Jason Street and 63rd Place. The contributing impervious areas in T1 include the roads and St. Ambrose Church and St. Ambrose School. St. Ambrose has a large parking lot and two stormwater structures for the church and the school. The Clean Water Partnership was involved with the installation of the two Filterras that treat runoff from the parking lot between the church and school. These two practices have a combined drainage area of 0.94 Acres with approximately 0.70 acres of impervious area. Since these practices already exist, the study's focus shifted to other areas (*Appendix C, Photo 1*).

The majority of the roads in this subdrainage area have steep slopes associated with them which make it difficult to install practices within the Town's right-of-way. There is one area where the roads flatten out near the intersection of 63rd Place and Joslyn Place that was evaluated as a potential project location (*Appendix C, Photo 2*).

On 63rd Place between Cheverly Hills Court and Joslyn Place, the generally steep road has an area where it levels out. According to the property owners in the area, the community has recently cleared invasive vegetation from the area and planted 30 trees with the intention to plant more. There are also some Bradford Pear Trees in this area that the community intends to remove. Both 63rd Place and Joslyn Place are approximately 25 feet wide with houses constructed on only one side of the road. This area will be called *Area A* in the Potential Opportunities section of the study *(Appendix C, Photos 3, 4, and 5)*.

Outfall 1

Outfall 1 receives runoff from the northeastern portion of the drainage area which accounts for 39.12 acres. The roads that contribute to the runoff include Kilmer Street, Sullivan Drive, Cheverly Hills Court, and Landover Road. The contributing impervious areas include the roads, Gladys Noon Spellman Elementary School, Trinity Bible Mission Church, and The Benjamin at Landover Hills Apartments. The Elementary School and The Benjamin at Landover Hills Apartments are the largest parcels in this subdrainage area. Both properties have large parking lots and storm drain structures.

Gladys Noon Spellman Elementary School has a large parking lot on the east side of the property. The parking lot is graded into the slope with benches for the parking spaces and travel lanes (*Appendix C, Photos 6 and 7*). The existing storm drain system has an inlet in the corner of each bench and an inlet along the driveway entrance (*Appendix C, Photos 8 and 9*). Since this area has existing inlets and is comprised of mostly impervious surfaces, it provides an opportunity for ESD practices to be installed. This area will be called *Area B* in the Potential Opportunities section of the study.

The Benjamin at Landover Hills Apartments has seven buildings and three large parking lots. The storm drain system runs through the middle of this parcel and between the buildings (*Appendix C, Photos 10, 11, 12, 13, and 14)*. Several factors limit the installation of an ESD practice in this area including spacing and topography between the apartment buildings, the storm drain line is not wide enough to include a micro-bioretention area, nor is it at a grade where a bio-swale could be beneficial. A bio-swale was considered but grading for this practice would be difficult to tie the proposed contours into the existing grade on the side slope. This grading would require more excavation and disturbance. Given the topography in this area, if a larger-than-designed storm occurs, the runoff from the bio-swale could cause flooding of both the sidewalk and apartments located on the first floor. Additionally, since the storm drain is located above-grade from the potential swale, if there were any maintenance to the storm drain, the bio-swale would be directly impacted and undesirable for the ESD.

The parking lot on the eastern side of the apartment complex has the potential to accommodate a micro-bioretention area (*Appendix C, Photos 15 and 16)*. The area has a narrow island between two rows of parking. This island could be expanded and the travel lanes behind the parking spots could be changed from two-way to one-way with asphalt speed humps to help direct runoff into the practice. The major downside to this area is that the closest inlet to which this area currently drains is approximately 350 linear feet away which means there is no place for the underdrain to connect to an existing inlet or manhole. This area will be called *Area C* in the Potential Opportunities section of the study.

Sullivan Drive is located on the south side of the apartment complex and connects 63rd Place and Kilmer Street (*Appendix C, Photo 18)*. This road has several inlets that connect to the storm drain system near the intersection with Kilmer Street (*Appendix C, Photos 19 and 20)*. This intersection has a crosswalk that is approximately 80 feet long and is located in the lowest point of Kilmer Street within this subdrainage area. This area will be called *Area D* in the Potential Opportunities section of the study.

Cheverly Hills Court was another area within this subdrainage area with existing storm structures that were examined. However, the existing roadway has a steep slope, there are many single-family homes in close proximity, and a lack of space within the public right of way eliminates this area from consideration.

Outfall 2

Outfall 2 collects runoff from the rear of the houses on the eastern side of 63rd Place and the rear of houses on the western side of Cheverly Oak Court. This subdrainage area has contributes only 2.09 acres and is comprised of only single-family homes. Thus, due to accessibility issues and being predominantly single-family homes, no further exploration of this area was conducted.

Outfall 3

Outfall 3 collects runoff from Oak Street, Hillside Avenue, and Maureen Court. This area accounts for 2.97 acres from mostly single-family homes. The outfall of the storm drain is near the end of Hillside Avenue. Street-end practices are used in areas where roads end. However, given the slope of the road and the velocity of runoff in the curb and gutter , any ESD

practice would require a plunge pool or some other method to dissipate the velocity as it enters. No further exploration of this area was conducted since it is predominantly single-family homes, there is a steep slope of the road and adjacent properties, and it is a small drainage area.

Outfall 4

Outfall 4 collects runoff from Inwood Street, 64th Avenue, Cheverly Oak Court, Oak Forest Court, and Hillside Avenue. This area accounts for 12.90 acres from mostly single-family homes. The ends of Cheverly Oak Court and Oak Forest Court have cul-de-sacs present with inlets in the vicinity. Similar to Outfall 3, the slope of the road combined with velocity of the runoff in the curb and gutter would be too high for an ESD practice to accept without a plunge pool or some other way to dissipate the velocity. No further exploration of this area was conducted.

Soil Classification

Reviewing the soil classification was the next step in this process. The HSG Classification limits which type of ESD practices could be implemented. The drainage area for this project has an HSG classification of mostly D soils based on information obtained from Web Soil Survey. A copy of the HSG Report is included in the appendix. HSG D Soils indicate a high clay content and/or poorly draining soils which are not ideal for most practices that do not have underdrain systems associated. Due to the soil classification, RES focused on practices that would connect the existing storm drain system for potential upland stormwater management practices. Practices like permeable pavement, landscape infiltration, and dry wells will not be considered as a viable option since the MDE SWM Manual states these types of practices should not be installed in soils that have a rating for HSG of D due to the likelihood of the runoff not infiltrating into the soils.

Potential opportunities

The following sections provide an overview of Areas A, B, C, and D, and include their locations *(Map 3. Overview of Potential Opportunity Location Map*) and their potential practice opportunities that are being considered.

Map 3. Overview of Potential Opportunity Locations

Area A

Area A is a relatively flat area located along the west side of 63rd Place between Cheverly Hills Court and Joslyn Place (*Map 4. Area A Map)*. This area currently has volunteers removing invasive vegetation which has taken root. They are removing the invasive vegetation and replacing it with native trees and grasses. Thirty trees have already been planted and the community volunteers plan to plant more. They are also planning to remove Bradford Pears growing in this area. The roads are 25 feet wide and the inlet on 63rd Place is 150-feet from the corner of the intersection of 63rd Place and Joslyn Place. The drainage area to the inlet on 63rd Place appears to exceed 1-acre which is greater than most ESD practices should receive. However, by utilizing multiple cells and establishing a treatment train of micro-bioretention areas starting along Joslyn Place and continuing around the corner on 63rd Place, this runoff could be treated. Installing a check dam or weir would be required to separate the cells.

The first cell should be a plunge pool to dissipate the velocities from the curb and gutter. An underdrain system would be required due to the soil classification. Some of the roadway could be removed since there are no houses on the north side of Joslyn Place and the west side of 63rd Place. This would reduce the available street parking, but these practices could additionally act as bump outs for traffic calming. The existing inlet on 63rd Place could be used either as a control structure or a connection point for the underdrain system that would be installed. The largest potential issues in this area include potential underground utility conflicts, costs for concrete curb removal and replacement, and the loss of parking spaces. Further exploration of this practice would need to evaluate the existing utilities in the vicinity, evaluate the turning radii of vehicles that would use this intersection (bus, trash truck, etc.), soil borings, verification of property lines and delineation of the drainage area coming to the inlet and potential practice.

Map 4. Area A Map

Area B

Area B is located within the parking lot of Gladys Noon Spellman Elementary School (*Map 5. Area B Map)*. As stated previously, this parking lot is tiered into the slope with a driveway connecting to Kilmer Street. The parking lot has two inlets located in the corners of two parking spots and one inlet on the eastern side of the driveway connecting the parking lot to Kilmer Street. This area has potential for three micro-bioretention areas with an underdrain that connects to the existing inlet. The existing inlets could also be used as a control structure for the practices.

Although the inlets in the parking spaces are deep enough to allow for a micro-bioretention practice, they would require the loss of at least two parking spaces per inlet which may not be favorable to the school. The inlet in the driveway does not impact parking and could be used as an overflow for a micro-bioretention practice that receives about 8,000 SF of impervious area. The practice that could be installed in this area would need to have more than one cell with a check dam or weir between the cells. Additionally, some impervious areas of the driveway would need to be removed for this practice to be installed. Further exploration of this practice would need to evaluate the turning radius of vehicles using the driveway, soil borings, verification of the property lines, and delineation of the drainage area coming to the inlet and potential practice.

Map 5. Area B Map

Area C

Area C is in the easternmost parking lot for The Benjamin at Landover Hills Apartments *(Map 6. Area C Map)*. The parking lot has two 20-foot travel lanes around the two rows of parking spots in this area with a six-foot impervious median in between. The median could be removed and replaced with a micro-bioretention area. If the travel lanes were reduced to 15 feet and made one way, the footprint of the micro-bioretention area could be increased. To direct runoff into the practice, asphalt speed humps could be installed.

The major drawback to this potential practice is that there is not an existing storm drain inlet close to this area. The nearest inlet is approximately 350 linear feet away. Without anywhere to connect an underdrain from this practice, this area may not be feasible to retrofit. Further exploration of this practice would need to establish communication with the property owner, evaluate the existing utilities in the vicinity, evaluate the turning radius of the vehicles using the parking lot, verification of the property lines, soil borings, delineation of the drainage area coming to the potential practice, and determine if extending the storm drain system is viable.

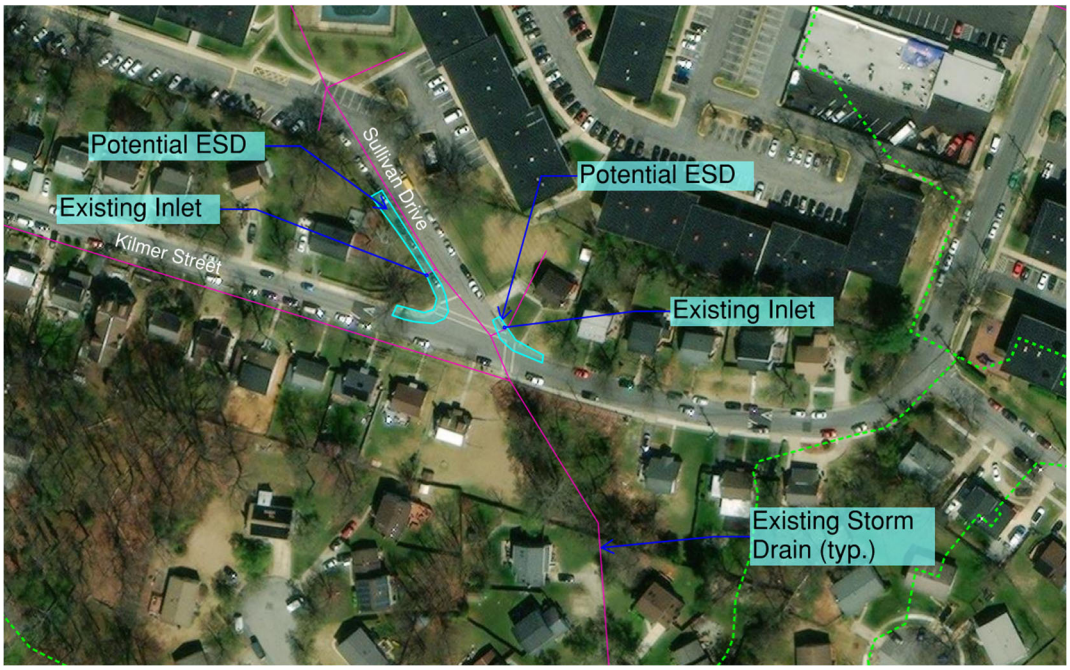
Map 6. Area C Map

Area D

Area D is located at the intersection of Sullivan Drive and Kilmer Street (*Map 7. Area D Map*). The existing storm drain system has an inlet located on both sides of Kilmer Street. Given that this area is the lowest point of the roads within the area, runoff from both Sullivan Drive and Kilmer Street is collected into the storm drain system here. This intersection is at an angle which creates a crosswalk that is 80 feet long and Kilmer Street is only 34-feet wide. The crosswalk length could be reduced by installing a streetscape micro-bioretention area that could provide shelter to pedestrians, reduce the length of the crosswalk, and provide treatment for runoff. The existing inlets could be used as control structures for larger-than-designed storms. The drainage area for both inlets exceed 1-acre and a treatment train of micro-bioretention cells would need to be implemented. As with the practice outlined in Area A, these practices should have a plunge pool in the first cell to dissipate the runoff velocity entering the practices.

The major concerns for these practices would include existing utility impacts, loss of parking, and the potential for the practices to be undersized for the drainage area. Further exploration of this practice would need to evaluate the turning radius of vehicles using this intersection, soil borings, delineation of the drainage area coming to the inlets and the potential practices, coordination with property owners, and verification of the property lines.

Map 7. Area D Map

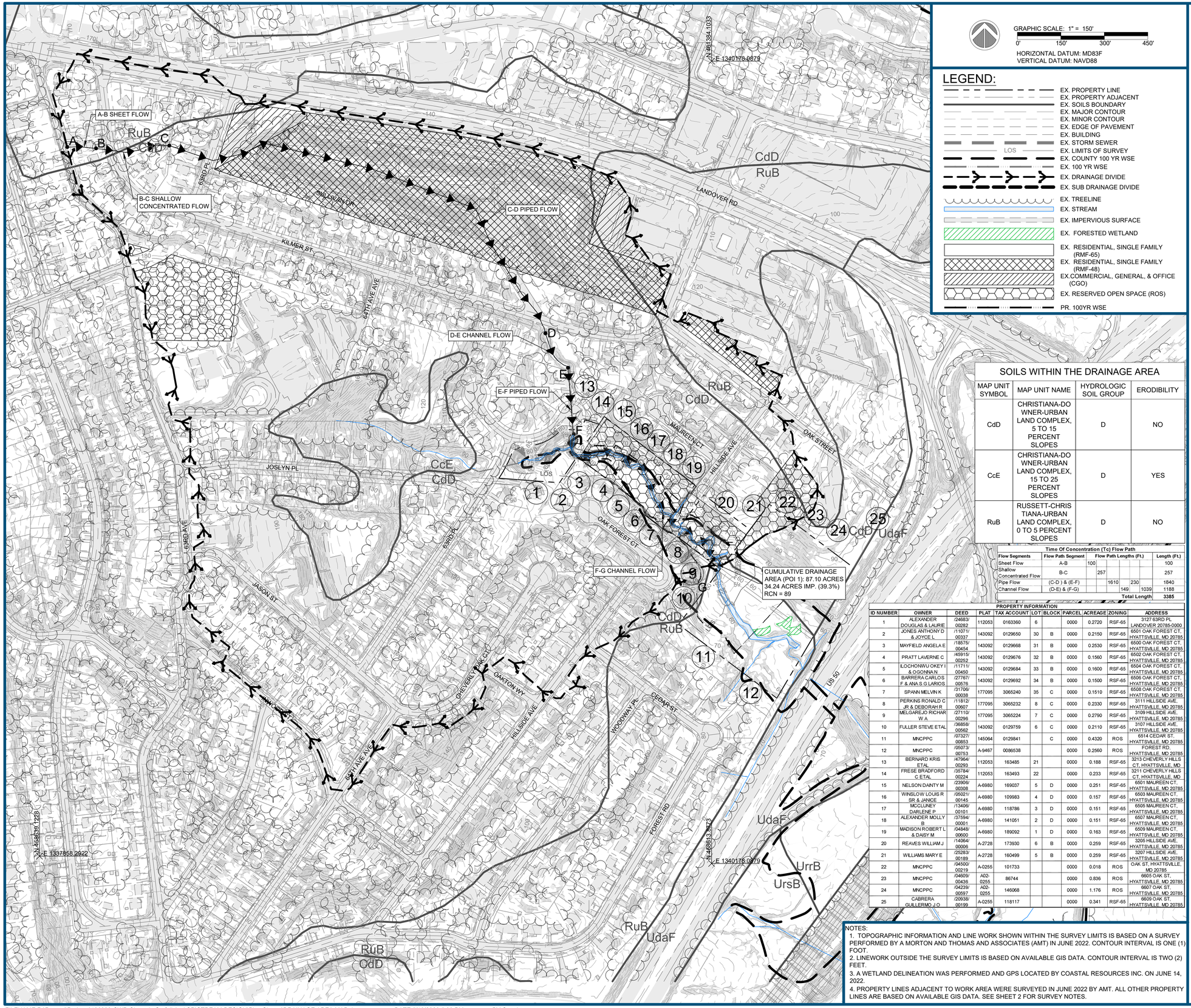


Summary and Conclusion

The four areas discussed in this study have the potential to treat runoff within the drainage area of the stream restoration project. If these areas were prioritized based on ease of design, implementation, and cost, Area A and Area D should be at the top of the list. Although Area C is almost 100% impervious, providing a connection to the existing storm drain system could be cost prohibitive. Area B could provide some educational opportunities, however, losing parking spaces may not be desirable for the school, which may eliminate this opportunity from the list.

Appendix A – Drainage Area Map

Town of Cheverly



GRAPHIC SCALE: 1" = 150'
0' 150' 300' 450'
HORIZONTAL DATUM: MD83F
VERTICAL DATUM: NAVD88

LEGEND:

- EX. PROPERTY LINE
- EX. PROPERTY ADJACENT
- EX. SOILS BOUNDARY
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. EDGE OF PAVEMENT
- EX. BUILDING
- EX. STORM SEWER
- EX. LIMITS OF SURVEY (LOS)
- EX. COUNTY 100 YR WSE
- EX. 100 YR WSE
- EX. DRAINAGE DIVIDE
- EX. SUB DRAINAGE DIVIDE
- EX. TREELINE
- EX. STREAM
- EX. IMPERVIOUS SURFACE
- EX. FORESTED WETLAND
- EX. RESIDENTIAL, SINGLE FAMILY (RMF-65)
- EX. RESIDENTIAL, SINGLE FAMILY (RMF-48)
- EX.COMMERCIAL, GENERAL, & OFFICE (CGO)
- EX. RESERVED OPEN SPACE (ROS)
- PR. 100YR WSE

SOILS WITHIN THE DRAINAGE AREA

MAP UNIT SYMBOL	MAP UNIT NAME	HYDROLOGIC SOIL GROUP	ERODIBILITY
CdD	CHRISTIANA-DOWNER-URBAN LAND COMPLEX, 5 TO 15 PERCENT SLOPES	D	NO
CcE	CHRISTIANA-DOWNER-URBAN LAND COMPLEX, 15 TO 25 PERCENT SLOPES	D	YES
RuB	RUSSETT-CHRISTIANA-URBAN LAND COMPLEX, 0 TO 5 PERCENT SLOPES	D	NO

Time Of Concentration (Tc) Flow Path

Flow Segments	Flow Path Segment	Flow Path Lengths (Ft.)	Length (Ft.)
Sheet Flow	A-B	100	100
Shallow Concentrated Flow	B-C	257	257
Pipe Flow	(C-D) & (E-F)	1610 230	1840
Channel Flow	(D-E) & (F-G)	149 1039	1188
		Total Length	3385

PROPERTY INFORMATION

ID NUMBER	OWNER	DEED	PLAT	TAX ACCOUNT	LOT	BLOCK	PARCEL	ACREAGE	ZONING	ADDRESS
1	ALEXANDER DOUGLAS & LAURIE	/24683/ 00282	112053	0163360	6		0000	0.2720	RSF-65	3127 63RD PL LANDOVER 20785-0000
2	JONES ANTHONY D & JOYCE L	/11071/ 00337	143092	0129650	30	B	0000	0.2150	RSF-65	6501 OAK FOREST CT, HYATTSVILLE, MD 20785
3	MAYFIELD ANGELA E	/18575/ 00454	143092	0129668	31	B	0000	0.2530	RSF-65	6500 OAK FOREST CT, HYATTSVILLE, MD 20785
4	PRATT LAVERNE C	/45915/ 00252	143092	0129676	32	B	0000	0.1560	RSF-65	6502 OAK FOREST CT, HYATTSVILLE, MD 20785
5	ILOCHONWU OKEY I & OGONNA N	/11711/ 00450	143092	0129684	33	B	0000	0.1600	RSF-65	6504 OAK FOREST CT, HYATTSVILLE, MD 20785
6	BARRERA CARLOS F & ANA S G LARIOS	/27767/ 00576	143092	0129692	34	B	0000	0.1500	RSF-65	6506 OAK FOREST CT, HYATTSVILLE, MD 20785
7	SPANN MELVIN K	/31706/ 00038	177095	3065240	35	C	0000	0.1510	RSF-65	6508 OAK FOREST CT, HYATTSVILLE, MD 20785
8	PERKINS RONALD C JR & DEBORAH R	/11812/ 00607	177095	3065232	8	C	0000	0.2330	RSF-65	3111 HILLSIDE AVE, HYATTSVILLE, MD 20785
9	MELGAREJO RICHARD A	/27110/ 00296	177095	3065224	7	C	0000	0.2790	RSF-65	3109 HILLSIDE AVE, HYATTSVILLE, MD 20785
10	FULLER STEVE ETAL	/36858/ 00562	143092	0129759	6	C	0000	0.2110	RSF-65	3107 HILLSIDE AVE, HYATTSVILLE, MD 20785
11	MNCPPC	/07327/ 00853	145064	0129841		C	0000	0.4320	ROS	6814 CEDAR ST, HYATTSVILLE, MD 20785
12	MNCPPC	/05073/ 00753	A-9467	0086538			0000	0.2560	ROS	FOREST RD HYATTSVILLE, MD 20785
13	BERNARD KRIS ETAL	/47964/ 00293	112053	163485	21		0000	0.188	RSF-65	3213 CHEVERLY HILLS CT, HYATTSVILLE, MD
14	FRESE BRADFORD C ETAL	/35784/ 00224	112053	163493	22		0000	0.233	RSF-65	3211 CHEVERLY HILLS CT, HYATTSVILLE, MD
15	NELSON DANTY M	/23906/ 00308	A-6980	169037	5	D	0000	0.251	RSF-65	6501 MAUREEN CT, HYATTSVILLE, MD 20785
16	WINSLOW LOUIS R SR & JANICE	/05021/ 00145	A-6980	109983	4	D	0000	0.157	RSF-65	6503 MAUREEN CT, HYATTSVILLE, MD 20785
17	MCCLUNEY DARLENE P	/13406/ 00101	A-6980	118786	3	D	0000	0.151	RSF-65	6505 MAUREEN CT, HYATTSVILLE, MD 20785
18	ALEXANDER MOLLY B	/37594/ 00001	A-6980	141051	2	D	0000	0.151	RSF-65	6507 MAUREEN CT, HYATTSVILLE, MD 20785
19	MADISON ROBERT L & DAISY M	/04848/ 00600	A-6980	189092	1	D	0000	0.163	RSF-65	6509 MAUREEN CT, HYATTSVILLE, MD 20785
20	REAVES WILLIAM J	/14064/ 00006	A-2728	173930	6	B	0000	0.259	RSF-65	3205 HILLSIDE AVE, HYATTSVILLE, MD 20785
21	WILLIAMS MARY E	/25283/ 00189	A-2728	160499	5	B	0000	0.259	RSF-65	3207 HILLSIDE AVE, HYATTSVILLE, MD 20785
22	MNCPPC	/04500/ 00219	A-0255	101733			0000	0.018	ROS	OAK ST, HYATTSVILLE, MD 20785
23	MNCPPC	/04609/ 00436	A02-0255	86744			0000	0.836	ROS	6605 OAK ST, HYATTSVILLE, MD 20785
24	MNCPPC	/04239/ 00597	A02-0255	146068			0000	1.176	ROS	6607 OAK ST, HYATTSVILLE, MD 20785
25	CABRERA GUILLERMO J O	/20938/ 00199	A-0255	118117			0000	0.341	RSF-65	6609 OAK ST, HYATTSVILLE, MD 20785

NOTES:
1. TOPOGRAPHIC INFORMATION AND LINE WORK SHOWN WITHIN THE SURVEY LIMITS IS BASED ON A SURVEY PERFORMED BY A MORTON AND THOMAS AND ASSOCIATES (AMT) IN JUNE 2022. CONTOUR INTERVAL IS ONE (1) FOOT.
2. LINEWORK OUTSIDE THE SURVEY LIMITS IS BASED ON AVAILABLE GIS DATA. CONTOUR INTERVAL IS TWO (2) FEET.
3. A WETLAND DELINEATION WAS PERFORMED AND GPS LOCATED BY COASTAL RESOURCES INC. ON JUNE 14, 2022.
4. PROPERTY LINES ADJACENT TO WORK AREA WERE SURVEYED IN JUNE 2022 BY AMT. ALL OTHER PROPERTY LINES ARE BASED ON AVAILABLE GIS DATA. SEE SHEET 2 FOR SURVEY NOTES.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE STREAM RESTORATION SHOWN ON THE PLANS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS APPROVED BY PRINCE GEORGE'S COUNTY DEPARTMENT OF THE ENVIRONMENT.

BAILEY J. WILFONG, MD. REG. P.E. NO. 52852

DEPARTMENT OF THE ENVIRONMENT (DoE)
PRINCE GEORGE'S COUNTY, MARYLAND

PEER REVIEW APPROVAL STAMP

"I hereby certify that I have successfully completed participation in DPIE's Peer Review Program. I have reviewed these plans in Detail and they are in conformance with the County's Code, General Specifications and Standards."

APPROVAL DATE: _____
PEER REVIEWER'S NAME: BENJAMIN T. MOSIER, P.E.
PEER REVIEWER'S SIGNATURE: _____
COMPANY NAME: SOLTESZ, INC.
LICENSE NUMBER: 40806
PERMIT NUMBER: 29620-2022-0

CLEAN WATER PARTNERSHIP

res
HGS, LLC, A RES COMPANY
5367 TELEPHONE ROAD, WARRENTON, VIRGINIA 20187
P: 703.393.4844 | F: 703.393.2934
WWW.RES.US

CHEVERLY OUTFALL AND STREAM RESTORATION

CLIENT: COVIAS PRINCE GEORGE'S COUNTY
STORMWATER PARTNERS, LLC

DRAINAGE AREA MAP

PRINCE GEORGE'S COUNTY, MD

STAMP/SEAL:
PROFESSIONAL CERTIFICATION.
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 52852, EXPIRATION DATE: 6/14/2024

30% DESIGN REVIEW
5/10/2023
Signature Date

PERMIT PLAN DESIGN REVIEW
x ----
Signature Date

CONSTRUCTION PLAN REVIEW
x ----
Signature Date

REVISIONS:

PROJECT MANAGER:	JM
DESIGNED:	AM
DRAWN:	AM
JOB NUMBER:	106683
DESIGN TYPE:	TMDL STREAM
DATE:	5/10/2023
SHEET NO:	3 OF 26

Appendix B – Soil Classification


76° 54' 49" W
76° 53' 47" W
38° 56' 15" N
38° 55' 10" N
334300
334500
334700
334900
335100
335300
335500
334100
4311500
4311300
4311100
4310900
4310700
4310500
4310300
4310100
4309900
4309700
65th
62nd Pl
Kilmer St
202
Inwood St
Parkway
50
Us Hwy 50
CcD
CdD
lu
RuB
CcE
UdaF
ZS
UrrB
CcC
UrsB
Map Scale: 1:9,700 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 100 200 400 600
Feet
0 450 900 1800 2700
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Prince George's County, Maryland
Survey Area Data: Version 20, Sep 14, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 3, 2015—Nov 28, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CcC	Christiana-Downer complex, 5 to 10 percent slopes	D	0.5	0.1%
CcD	Christiana-Downer complex, 10 to 15 percent slopes	D	1.7	0.4%
CcE	Christiana-Downer complex, 15 to 25 percent slopes	D	8.4	2.1%
CdD	Christiana-Downer-Urban land complex, 5 to 15 percent slopes	D	241.8	60.7%
Iu	Issue-Urban land complex, occasionally flooded	B/D	7.6	1.9%
RuB	Russett-Christiana-Urban land complex, 0 to 5 percent slopes	D	74.8	18.8%
UdaF	Udorthents, highway, 0 to 65 percent slopes		44.1	11.1%
UrrB	Urban land-Russett-Christiana complex, 0 to 5 percent slopes	D	6.6	1.7%
UrsB	Urban land-Sassafras complex, 0 to 5 percent slopes	D	0.1	0.0%
ZS	Zekiah and Issue soils, frequently flooded	B/D	13.0	3.3%
Totals for Area of Interest			**398.4**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix C - Photos

Tributary 1 (T1)

Outfall 1

Outfall 2

Photo 1 Filterras in Church Parking Lot, Tributary 1 (Existing practice present)

Photo 2. Joslyn Place looking towards 63rd Place, Area A – Tributary 1

Photo 3. 63rd Place looking towards Cheverly Hills Court, Area A – Tributary 1

Photo 4. Inlet on 63rd Place looking towards Joslyn Place, Area A – Tributary 1

Photo 5. Invasive Removal done by Community near Area A – Tributary 1

Photo 6. Gladys Noon Spellman Elementary School Upper Parking Lot Inlet, Area B - Outfall 1

Photo 7. Gladys Noon Spellman Elementary School Lower Parking Lot Inlet, Area B - Outfall 1

Photo 8. Gladys Noon Spellman Elementary School Driveway to Parking Lot Inlet, Area B - Outfall 1

Photo 9. Gladys Noon Spellman Elementary School Upper Parking Lot Inlet, Area B - Outfall 1

Photo 10. The Benjamin at Landover Hills Apartments, Area between Buildings, Outfall 1

Photo 11. The Benjamin at Landover Hills Apartments, Area between Buildings, Outfall 1

Photo 12. The Benjamin at Landover Hills Apartments, Area between Buildings, Outfall 1

Photo 13. The Benjamin at Landover Hills Apartments, Area between Buildings, Outfall 1

Photo 14. The Benjamin at Landover Hills Apartments, Area between Buildings, Outfall 1

Photo 15. The Benjamin at Landover Hills Apartments Easternmost Parking Lot, Outfall 1 - Area C

Photo 16. The Benjamin at Landover Hills Apartments Easternmost Parking Lot, Outfall 1 - Area C

Photo 17. The Benjamin at Landover Hills Apartments Inlet for Area C, Outfall 1

Photo 18. Sullivan Drive looking towards Kilmer Street, Outfall 1 - Area D

Photo 19. Inlet on Eastern Side of Sullivan Drive at Intersection of Kilmer Street, Outfall 1 - Area D

Photo 20. Inlet on Western Side of Sullivan Drive at Intersection of Kilmer Street, Outfall 1 - Area D